Detailed Action

Status of Application, Amendments, And/Or Claims:

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 1647. The Examiner prosecuting this application has been changed. Any inquiries relating to the examination of the application should be directed to Shulamith H. Shafer, Art Unit 1647.

Applicants' election, amendment of the specification, claims and sequence listing with CRF of 9 November 2007 are acknowledged. Applicants' response, received on 3 March 2008 to Notice to Comply with sequence rules is acknowledged and entered into the record.

Claims 1-24 have been cancelled. New claims 25 and 26 have been presented and entered into the record.

Claims 25 and 26 are under consideration.

Information Disclosure Statement:

The Information Disclosure statements (IDS) submitted on the 30 June 2005, has been considered. The signed copy is attached.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

The claims of the instant invention are drawn to a recombinantly produced TNF-α binding molecule comprising a heavy chain of SEQ ID NO:115 and a light chain amino acid sequence of SEQ ID NO:116. The heavy chain variable region comprises FRH1, FRH2, FRH3, CDRH1, CDRH2, and CDRH3 sequences wherein FRH1 comprises SEQ ID NO:65, FRH2 comprises SEQ ID NO:66, FRH3 comprises SEQ ID NO:67, CDRH1

comprises SEQ ID NO:87, CDRH2 comprises SEQ ID NO:89, CDRH3 comprises SEQ ID NO:91.

TNF-α binding molecules, such as anti-TNF antibodies, are well known in the art (See for example, Rathjen et al. U.S. 6,451,983, 17 September 2002, cited on IDS of 30 June 2005). However, a TNF-α binding molecule comprising the sequences of the instant invention is not taught in the prior art.

The claimed invention is novel and nonobvious because the instant invention recites SEQ ID NOs: 87, 89, 91, 115 and 116 which are free of the prior art. Since these sequences are free of the prior art, the TNF-α binding molecule of the instant invention is also novel and nonobvious.

The light chain of the instant invention comprises SEQ ID NO:116. The closest prior art to SEQ ID NO:116 is Tsuji et al. (US 6,803,039, filed 16 May 2001, the '039 patent). The '039 patent teaches a sequence, SEQ ID NO:30, which is 89.2% identical to SEQ ID NO:116 of the claimed invention (See results in SCORE and alignment below).

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Patent No. 6803039
SEQ ID NO 30

  Query Match             89.2%;  Score 993.5;  DB 2;  Length 236;
  Best Local Similarity   90.7%;  Pred. No. 8.5e-72;
  Matches  194;  Conservative    9;  Mismatches   10;  Indels    1;  Gaps    1;

Qy          1 DIQMTQSPSSLSASVGDRVTITCVTTQFVGYAIHWYQQKPGKAPKLLIYYASSSRSGVPS 60
              |||||||||:||||||||||  :| :   : |||||||||||||| ||| :|||||
Db         23 DIQMTQSPSSVSASVGDRVTITCRASQGISRLLAWYQQKPGKAPKLLIYVASSLQSGVPS 82

Qy         61 RFSGSGSGTDFTLTISSLQPEDFATYYCQQSHGWPFTFGQGTKVEIKRTVAAPSVFI-PP 119
              ||||||||||||||||||||||||||:: :|:|||||||||||||||||||| ||
Db         83 RFSGSGSGTDFTLTISSLQPEDFATYYCQQANSFPWTFGQGTKVEIKRTVAAPSVFIFPP 142

Qy        120 SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLT 179
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        143 SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLT 202

Qy        180 LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC 213
              |||||||||||||||||||||||||||||||||
Db        203 LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC 236
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SEQ ID NO:30 is identified as a light chain variable region of a humanized antibody directed to the antigen AILIM (activation inducible lymphocyte immunomodulatory molecule, also refereed to as ICOS). However, the prior art reference does not suggest making the specific changes to the sequence of the '039 patent necessary to obtain the claimed SEQ ID NO:116.

The heavy chain of the instant invention comprises SEQ ID NO:115. The closest prior art to SEQ ID NO:115 is Bonnefoy et al. (US 7,008,623, filed 22 January 2002, the '623 patent). The '623 patent teaches a sequence, SEQ ID NO:53, which is 92.8% identical to SEQ ID NO:115 of the claimed invention (See results in SCORE and alignment below).

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Patent No. 7008623
SEQ ID NO 53
OTHER INFORMATION: Description of Artificial Sequence: Humanised anti-CD23 antibody VH
region
US-09-674-716B-53

  Query Match             92.8%;  Score 2235;  DB 3;  Length 444;
  Best Local Similarity   93.8%;  Pred. No. 8.2e-164;
  Matches  422;  Conservative    9;  Mismatches   13;  Indels    6;  Gaps    2;

Qy          1 EVQLVESGGGLVQPGGSLRLSCAASGFTFRNHWMNWVRQAPGKGLEWVGEIRSKSINSAT 60
              |||||||||||:|||||||||||||||  :||:|||||||||||| ||| || | ||
Db          1 EVQLVESGGGLVKPGGSLRLSCAASGFTFSGYWMSWVRQAPGKGLEWVAEIRLKSDNYAT 60

Qy         61 FYAESVKGRFTISRDDSKNSLYLQMNSLKTEDTAVYYCARNYYGSYYDHWGQGTLVTVSS 120
              |||||||:|||||||: ||||||||||||||||    : | ||||||||||
Db         61 HYAESVKGKFTISRDDSKSRLYLQMNSLKTEDTAVYYCT-----DFID-WGQGTLVTVSS 114

Qy        121 ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSS 180
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        115 ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSS 174

Qy        181 GLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGG 240
              ||||||||||||||||||||||||||||||||||:|||||||||||||||||||| |
Db        175 GLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELAGA 234

Qy        241 PSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN 300
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        235 PSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN 294

Qy        301 STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREE 360
              ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||:|
Db        295 STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDE 354

Qy        361 MTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRW 420
              :||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db        355 LTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRW 414
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Qy        421 QQGNVFSCSVMHEALHNHYTQKSLSLSPGK 450
              ||||||||||||||||||||||||||||||
Db        415 QQGNVFSCSVMHEALHNHYTQKSLSLSPGK 444
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SEQ ID NO:53 is identified as a component of antibodies which bind to the CD23 type II molecule. However, the prior art reference does not suggest making the specific changes to the sequence of the '623 patent necessary to obtain the claimed SEQ ID NO:115.

The heavy chain variable region comprises CDRs of SEQ ID NOs:87, 89, and 91.

The closest prior art to SEQ ID NO:87 (CDRH1) of the instant invention is Bander N.H. (US 7,192,586, filed 30 May 2002, the '586 patent). The'586 patent teaches a sequence, SEQ ID NO:29 which is 81.2% identical to SEQ ID NO:87 of the instant invention (See results in SCORE and alignment below).

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Patent No. 7192586
SEQ ID NO 29
US-10-160-506-29

  Query Match             81.2%;  Score 52;  DB 3;  Length 10;
  Best Local Similarity   80.0%;  Pred. No. 0.032;
  Matches    8;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GFTFRNHWMN 10
              |||| |:|||
Db          1 GFTFSNYWMN 10
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SEQ ID NO:29 is identified as a CDR of the heavy chain variable region of an anti-human prostate specific membrane antigen. However, the prior art reference does not suggest making the specific changes to the sequence of the '586 patent necessary to obtain the claimed SEQ ID NO:87.

The closest prior art to SEQ ID NO:89 (CDRH2) of the instant invention is Le et al. (US 5,656,272, cited on IDS of 30 June 2005, reference AV, the '272 patent). The '272 patent teaches a sequence, SEQ ID NO:5, that comprises a sequence that is

92.3% identical to SEQ ID NO:89 of the instant invention (See results in SCORE and alignment below.

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Patent No. 5656272

SEQ ID NO:  5:

US-08-192-102-5

  Query Match             92.3%;  Score 84;  DB 1;  Length 119;
  Best Local Similarity   94.7%;  Pred. No. 8.3e-07;
  Matches   18;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps
0;

Qy          1 EIRSKSINSATFYAESVKG 19
              |||||||||||  |||||||
Db         50 EIRSKSINSATHYAESVKG 68
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SEQ ID NO:5 is identified as the heavy chain variable region of an anti-TNF antibody. However, the prior art reference does not suggest making the specific changes to the sequence of the '272 patent necessary to obtain the claimed SEQ ID NO:89.

The closest prior art to SEQ ID NO:91 (CDRH3) of the instant invention is Dillner et al. (US 5,932,412, 3 August 1999, the '412 patent). The '412 patent teaches a sequence, SEQ ID NO:138 that comprises a sequence that is 74.1% identical to SEQ ID NO:138 of the instant invention (See results in SCORE and alignment below).

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Patent No. 5932412
SEQ ID NO:  138

  Query Match             74.1%;  Score 43;  DB 1;  Length 20;
  Best Local Similarity   77.8%;  Pred. No. 1.9;
  Matches    7;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps
0;

Qy          1 NYYGSYYDH 9
              |||| || |
Db          3 NYYGLYYVH 11
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SEQ ID NO:138 is identified as an antibody to human papillomavirus to be used for diagnosing papilloma virus. However, the prior art reference does not suggest

making the specific changes to the sequence of the '412 patent necessary to obtain the claimed SEQ ID NO:91..

The claimed sequences are made recombinantly and there is no reason to believe that this particular TNF-α binding molecule is found in nature.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHULAMITH H. SHAFER whose telephone number is (571)272-3332. The examiner can normally be reached on Monday through Friday, 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Manjunath Rao, Ph.D. can be reached on 571-272-0939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shulamith H. Shafer, Ph.D./
Examiner, Art Unit 1647

/Lorraine Spector/ Ph.D.
Primary Examiner, Art Unit 1647